IN THE CLAIMS:

1.-22. (Cancelled)

23. (Currently Amended) A storage system, comprising:

a destination storage device configured to store a copy of data from a source storage device;

a snapshot storage device configured to store a snapshot version of the data from the source storage device;

a ~~first~~ process configured to initiate a copy operation of the source storage device, wherein the copy operation is configured to copy each block of the source storage device to the destination storage device, and wherein the copy operation is performed in segments, and wherein each segment is a range of data bytes of the source storage device;

the storage system configured to receive a write request to modify a requested range of data bytes of the source storage device while the copy operation of the source storage device is in progress, wherein the write request to modify the requested range of data bytes is a write request range;

the storage system further configured to determine ~~if~~ that the write request range falls within the range of data bytes of the source storage device being copied while the copy operation is in progress;

in response to determining that the write request range falls within the range of data bytes of the source storage device being copied while the copy operation is in progress, the storage system ~~is~~ further configured to determine if a particular range of the range of data bytes of the source storage device to be modified by the write request range has already been written to ~~a~~ the snapshot storage device;

in response to determining that the particular range of the range of data bytes of the source storage device to be modified by the write request range has already been written to the snapshot storage device, the copy operation further configured to copy one or more bytes of the particular range of range of data bytes from the snapshot storage de-

vicewrite request is configured to be written to the source destination storage device, the process further configured to write the write request to the source storage device; and

in response to determining that the particular range of the range of data bytes of the source storage device to be modified by the write request range has not already been written to the snapshot storage device, a secondthe process is further configured to copy the particular range of the range of data bytes of the source storage device to the snapshot storage device, the second process is further configured to write the write request to the source storage device.

24. (Previously Presented) The storage system of claim 23, wherein the source storage device is organized in a RAID system.

25. (Previously Presented) The storage system of claim 23, wherein the storage system is further configured, in response to determining the write request range falls within the range of bytes being copied, to hold the write request in a cache and update a snapshot map.

26. (Currently Amended) The storage system of claim 23, wherein further comprising a server configured to execute the first process and the second process.

27. (Previously Presented) The storage system of claim 26, wherein the server is operatively connected to a storage area network switch and the server is further configured to communicate with the storage system through the storage area network switch.

28. (Previously Presented) The storage system of claim 23, wherein the process is configured to control multiple storage systems.

29. (Currently Amended) The storage system of claim 23, wherein the write request includes comprises a SCSI commands.

30. (Previously Presented) The storage system of claim 23, wherein the storage system is further configured to send one or more commands by using an in-band protocol.

31. (Currently Amended) A method, comprising:

starting a copy command from a source storage device to a destination storage device, wherein the copy command copies each block of the source storage device to the destination storage device, the copy command being performed in segments and each segment specifying a range of data bytes of the source storage device;

receiving a write request to modify a requested range of data bytes of the source storage device while the copy command is in progress, wherein the write request to modify the requested range of data bytes is a write request range;

determining if the write request range falls within the range of data bytes of the source storage device being copied;

determining, in response to the write request range falling within the range of data bytes of the source storage device being copied, if a particular range of the range of data bytes of the source storage device to be modified by the write request range has already been written to a snapshot;

~~writing~~copying, in response to the particular range of the range of data bytes of the source storage device to be modified by the write request range having already been written to the snapshot, one or more bytes of the particular range of range of data bytes to the destination storage device from the snapshot~~the write request to the source storage device~~; and

copying, in response to the particular range of the range of data bytes of the source storage device to be modified by the write request range having not already been written to the snapshot, the particular range of the range of data bytes to the snapshot, and then writing the write request to the source storage device.

32. (Previously Presented) The method of claim 31, wherein the source is organized in a RAID system.

33. (Previously Presented) The method of claim 31, further comprising:

in response to determining the write request range falls within the range of data bytes of the source storage device being copied, holding the write request command in a cache, and updating a snapshot map associated with the snapshot.

34. (Previously Presented) The method of claim 31, further comprising:

executing the copy command by a replication manager.

35. (Previously Presented) The method of claim 31, further comprising:

connecting a server to a storage area network switch and communicating with a storage system through the storage area network switch to execute the copy command.

36. (Previously Presented) The method of claim 31, further comprising:

controlling multiple storage device controllers by a replication manager.

37. (Previously Presented) The method of claim 31, wherein the write request comprises a SCSI command.

38. (Currently Amended) The method of claim 31, further comprising:

sending a storage system commands using one of an in-band protocol or an out-of-band protocol.

39. (Currently Amended) A computer-implemented method, comprising:

starting a copy operation by copying data from a source storage device to a destination storage device, the copy operation being performed in segments, and each segment having a range of data bytes of the source;

receiving a write request to modify a requested range of data bytes of the source storage device while the copy operation is in progress, wherein the write request to modify the requested range of data bytes is a write request range;

determining if the write request range falls within the range of data bytes of the source storage device being copied;

determining, in response to the write request range being in the range of data bytes of the source storage device being copied, if a particular range of the range of data bytes of the source storage device to be modified by the write request range has been written to a snapshot;

~~writing~~copying, in response to the range of data bytes of the source storage device to be modified by the write request range having been written to the snapshot, one or more bytes of the particular range of data bytes to the destination storage device from the snapshot storage~~the write request to the source storage device~~; and

copying, in response to the range of data bytes of the source storage device to be modified by the write request range having not been written to the snapshot, the particular range of the range of data bytes of the source storage device to the snapshot, and then writing the write request to the source storage device.

40. (Currently Amended) A system, comprising:

a destination storage device configured to store a copy from a source storage device;

a snapshot storage device configured to store a snapshot version of the data from the storage device;

a ~~first~~ process configured to initiate a copy operation of the source storage device wherein the copy operation ~~includes~~ comprises copying each block of the source storage device to the destination storage device, the copy operation being performed in segments, and each segment having a range of data bytes of the source storage device;

the system configured to receive a write request to modify a requested range of data bytes of the source storage device while the copy operation is in progress, wherein the write request to modify the requested range of data bytes is a write request range;

the system further configured to determine ~~if~~ that the write request range falls within the range of data bytes of the source storage device being copied;

in response to determining that the write request range falls within the range of bytes of the source storage device being copied, the system further configured to determine if a particular range of the range of data bytes of the source storage device to be modified by the write request range ~~have~~ has been written to a snapshot of the snapshot storage device;

in response to determining that the particular range of the range of data bytes of the source storage device to be modified by the write request range ~~have~~ has been written to the snapshot, the process further configured to copy one or more bytes of the particular range of the range of data bytes to the destination storage device from the snapshot~~the write request to be written to the source storage device~~; and

in response to determining that the particular range of the range of data bytes of the source storage device to be modified by the write request range ~~have~~ has not been written to the snapshot, the~~a second~~ process further configured to copy the particular range of the range of data bytes of the source storage device to the snapshot, ~~and then~~ the ~~second~~ process further configured to write the write request to the source storage device.

41. (Currently Amended) The system of claim 40, wherein the ~~first~~ process ~~and the second process are~~ is executed on a file server and is further configured to control the source storage device and one or more other storage devices.

42. (Currently Amended) The system of claim 40, further comprising~~wherein~~ a list ~~comprising~~ of source storage device data blocks to be copied, wherein the list is configured to be reordered.

43. (Currently Amended) The system of claim 42, wherein the list of source storage device data blocks to be copied is buffered while the system awaits further copy commands.

44. (Currently Amended) The system of claim 40, wherein the ~~first~~ process ~~and the second process are~~ is further configured to insert control data before and after a source storage device data block is copied.

45. (Currently Amended) The system of claim 40, wherein the ~~first~~ process ~~and the second process are~~ is further configured to specify a block size so that the storage system writes one or more fixed-size blocks.

46. (Currently Amended) A method, comprising:

receiving a write request while a copy operation is in progress wherein the copy operation ~~includes~~ comprises copying each block of the source to the destination, the copy operation being performed in segments, and each segment has a range of data bytes of the source, the write request to modify a requested range of data bytes in a source storage device, wherein the write request to modify the requested range of data bytes is a write request range;

determining if the write request range being copied falls within a particular range of the range of bytes of the source storage device to be modified by the write request range;

determining that the particular range of the range of bytes of the source storage device to be modified by the write request range ~~have~~ has not been written to a snapshot;

in response to determining that the particular range of the range of bytes of the source storage device to be modified by the write request range ~~have~~ has not been written to the snapshot, copying the particular range of the range of bytes of the source storage device to be modified by the write request range to the snapshot before modifying the particular range of the range of bytes of the source storage device;

in response to determining that the particular range of the range of bytes of the source storage device to be modified by the write request range has been written to the snapshot, copying one or more bytes of the particular range of the range of data bytes to the destination from the snapshot;

updating a snapshot map, wherein the snapshot map indicates which blocks of the range of bytes are located in the snapshot; and

modifying the particular range of the range of bytes of data in the source storage device from the write request.

47. (Currently Amended) The storage system of claim 23, further comprising:

a first in first out queue configured to buffer the write request in response to determining that the particular range of the range of data bytes of the source storage device to be modified by the write request range ~~have~~ has not been written to the snapshot.

48. (Currently Amended) The method of claim 31, further comprising:

placing the write request in a first in first out queue in response to determining that the particular range of the range of data bytes of the source storage device to be modified by the write request range ~~have~~ has not been written to the snapshot.

49. (Currently Amended) A computer-readable storage media containing executable program instructions executed by a processor, comprising:

program instructions that receive at a source storage device a write request issued from a storage system, the write request specifying a first range of data bytes of the source storage device, the write request being received while the source storage device is being copied to a destination storage device; ~~and~~

in response to receiving the write request, program instructions that hold the write request in a cache;

program instructions that check if the first range overlaps with a ~~second range, wherein the second range is a~~ particular range of the range of data bytes of the source storage device to be modified by the write request that is being copied to the destination storage device;

program instructions that determine if the particular range of the range of data bytes of the source storage device to be modified by the write request has already been written to a snapshot storage device;

in response to the first range overlapping with the ~~second~~ particular range of data bytes of the source storage device to be modified by the write request already having been written to the snapshot storage device, program instructions that copy one or more

bytes of the ~~second~~ particular range of the range of data bytes from the snapshot storage device to the destination device~~source storage device to a snapshot~~;

program instructions that update a snapshot map; and

program instructions that allow the write request to write to the source storage device.

50. (Currently Amended) A method for making a copy of data in a database, comprising:

starting a copying operation of a source storage device to a destination storage device, wherein the copy operation is performed in segments and each segment is a range of data bytes of the source storage device, the copy operation started at a begin time;

maintaining a snapshot volume that includes each block of the source storage device that has a write request directed to that block during the course of the copy operation;

receiving a write request directed to a particular range of the range of data bytes to be modified by the write request range that currently is being copied to the destination storage device;

in response to determining that the particular range of the range of bytes to be modified by the write request range has been copied to the snapshot volume, continuing the copy operation to the destination storage device using one or more bytes of the particular range of the rang of data bytes from the snapshot;

in response to determining that the particular range of the range of bytes to be modified by the write request range ~~have~~ has not been copied to the snapshot volume, holding the write request until the particular range of the range of bytes to be modified by the write request range ~~are~~ is copied to the snapshot volume;

after completion of writing the particular range of the range of bytes to be modified by the write request range to the snapshot volume, executing the write request on the source storage device to update the source storage device; and

copying the snapshot volume to the destination storage device, wherein the copied snapshot volume maintains a copy of a data on the destination storage device as the data existed on the source storage device at the begin time.

51. (Currently Amended) A system to make a copy of data in a database, comprising:

a process executing on a processor of the system configured to initiate a copy operation of a source storage device to a destination storage device, wherein the copy operation is performed in segments and each segment is a range of data bytes of the source storage device, the copy operation started at a begin time;

the system configured to maintain a snapshot volume that includes each block of the source storage device that has a write request directed to that block during the course of the copy operation;

the system is further configured to receive a write request directed to the range of data bytes currently being copied to the destination storage device;

in response to determining that a particular range of the range of bytes to be modified by the write request range has been copied to the snapshot volume, the system further configured to continue the copy operation to the destination storage device using one or more bytes of the particular range of data bytes from the snapshot;

in response to determining that a particular range of the range of bytes to be modified by the write request range has not been copied to the snapshot volume, the system is further configured to hold the write request until the particular range of the range of bytes to be modified by the write request range are copied to the snapshot volume;

after completion of writing the particular range of the range of bytes to be modified by the write request range to the snapshot volume, the system is further configured to execute the write request on the source storage device to update the source; and

the system is further configured to copy the snapshot volume to the destination storage device, wherein the copied snapshot volume is configured to maintain a copy of a data on the destination storage device as the data existed on the source storage device at the begin time.

52. (Currently Amended) A computer-readable storage media containing executable program instructions executed by a processor, comprising:

program instructions that start a copying operation of a source storage device to a destination storage device, wherein the copy operation is performed in segments and each segment is a range of data bytes of the source storage device, the copy operation started at a begin time;

program instructions that maintain a snapshot volume that includes each block of the source storage device that has a write request directed to that block during the course of the copy operation;

program instructions that receive a write request directed to a particular range of the range of data bytes to be modified by the write request range that currently is being copied to the destination storage device;

in response to determining that the particular range of the range of bytes to be modified by the write request range has been copied to the snapshot volume, program instructions that continue the copy operation to the destination storage device using one or more bytes of the particular range of range of data bytes from the snapshot;

in response to determining that the particular range of the range of bytes to be modified by the write request range ~~have~~ has not been copied to the snapshot volume, program instructions that hold the write request until the particular range of the range of bytes to be modified by the write request range are copied to the snapshot volume;

program instructions that, after completion of writing the particular range of the range of bytes to be modified by the write request range to the snapshot volume, execute the write request on the source storage device to update the source storage device; and

program instructions that copy the snapshot volume to the destination storage device, wherein the copied snapshot volume maintains a copy of a data on the destination storage device as the data existed on the source storage device at the begin time.

53. (Currently Amended) The storage system of claim 23, wherein the storage system is further configured to send one or more commands by using an out-of-band protocol.

54. (Previously Presented) The method of claim 31, further comprising:

in response to determining that the write request range does not fall within the particular range of the range of data bytes of the source storage device being copied, determining if the write request range is directed to a next particular range of the range of data bytes that has not yet been written to the snapshot; and

in response to determining that the write request range is directed to the next particular range of the range of data bytes that has not yet been written to the snapshot, copying the next particular range of the range of bytes not yet written to the snapshot.